Poverty dynamics in the EU

Exploring the experience and trajectories of poverty over time

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GPEARI/DGE

10 November 2026

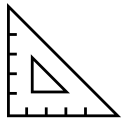
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Structure of our talk

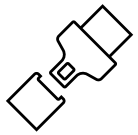

Motivation

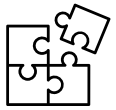

Research questions


Data (EU-SILC longitudinal)


Measures


Main results


Role of social protection


Concluding remarks and on-going work

Motivation

Poverty is not a fixed state - some people pass through it briefly, others stay trapped.

- Static (annual) measures may not capture the true extent of poverty experienced in a society.
- Distinct policy responses are required for chronic and transient poverty.

Prior research - mostly focused on persistence

- Exit from poverty becomes less likely the longer it lasts, with certain groups at greater risk
- Persistence is tied to structural factors, with past poverty directly raising the odds of future poverty.
- Economic shocks amplify poverty's scarring effect, making escape from poverty harder over time.

Gaps in literature

- Most studies focused on specific periods or countries.
- Recent EU-SILC waves have not been analysed (e.g., post-COVID).

What we do

We assess poverty dynamics across member states over the period 2011-2022 using EU-SILC longitudinal data.

We use two **complementary approaches**:

- Poverty trajectories (number, timing and duration of poverty episodes).
- Aggregate measures: Dynamic risk of poverty (incidence) and Dynamic poverty gap (+depth).

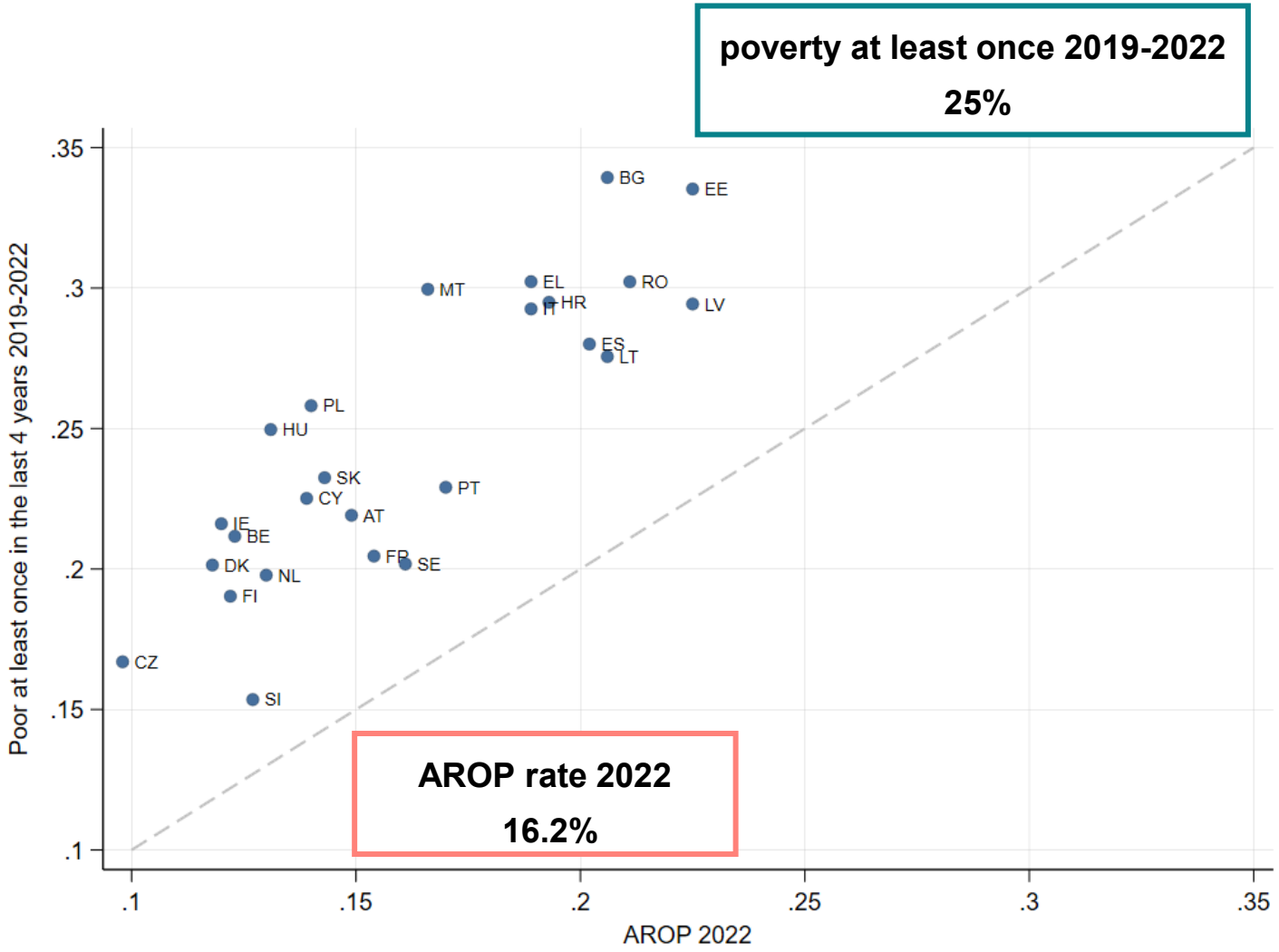
Core research questions

- How did dynamic poverty vary across EU countries between 2011 and 2022?
- Which individual, household, and labour-market characteristics are most strongly associated with different dynamic poverty experiences?
- What role do social transfers play in shaping the experience of poverty?

Core data methodological requirements

- Follow the same individuals consistently over many years
- Cover the population, not only taxpayers, employees or benefit recipients.
- Reconstruct household income after taxes and transfers (disposable income)
- Equivalise for household size and composition (equivalised disposable income)
- Carry enough socio-demographics to profile who is affected.

Cross-Sectional versus Dynamic Poverty, 2019-2022



The gap between the static and dynamic poverty reflects people moving in and out of poverty at different times (not picked up by the annual snapshots)

Data: Longitudinal EU-SILC (2011-2022)

EU-SILC wave	Income period covered by each EU-SILC wave												
2023	**2022**	2021	2020	2019	x LU								
2022		**2021**	2020	2019	2018	x DE							
2021			**2020**	2019	2018	2017	x DE						
2020				**2019**	2018	2017	2016	x DE					
2019					**2018**	2017	2016	2015					
2018						**2017**	2016	2015	2014				
2017							**2016**	2015	2014	2013	x DE	x SK	
2016								**2015**	2014	2013	2012	x DE	
2015									**2014**	2013	2012	2011	x DE

For each year, we measure if an individual is **at risk of poverty** (AROP)

- the official **poverty line** defined by Eurostat as 60% of the national median equivalised disposable income after social transfers
- the **equivalised disposable household income** is calculated by dividing total household income (after taxes and transfers) by the OECD-modified equivalence scale

- The datasets follows a 4-year rotational design
- The income information collected in year **t** refers to the year **t-1**
- Germany is absent in many of the EU-SILC waves and our analysis (19% EU-27)
- We are using a balanced panel (respondents were present in all the 4 years)
- Standard yearly AROP(E) is calculated from cross-sectional EU-SILC

1. Poverty trajectories

Poverty trajectories: clusters based on number, timing and duration of spells

Poverty trajectories	Year t	Year t+1	Year t+2	Year t+3	
1. Transient poverty	**Poor**	Non-Poor	Non-Poor	Non-Poor	1 year
	Non-Poor	**Poor**	Non-Poor	Non-Poor	
	Non-Poor	Non-Poor	**Poor**	Non-Poor	
	Non-Poor	Non-Poor	Non-Poor	**Poor**	
2. Exiting poverty	**Poor**	**Poor**	Non-Poor	Non-Poor	2 years
3. In and out of poverty	**Poor**	Non-Poor	**Poor**	Non-Poor	
	Poor	Non-Poor	Non-Poor	**Poor**	
	Non-Poor	**Poor**	**Poor**	Non-Poor	
	Non-Poor	**Poor**	Non-Poor	**Poor**	
4. Entering poverty	Non-Poor	Non-Poor	**Poor**	**Poor**	
5. Almost always in poverty	**Poor**	**Poor**	**Poor**	Non-Poor	3 years
	Poor	**Poor**	Non-Poor	**Poor**	
	Poor	Non-Poor	**Poor**	**Poor**	
	Non-Poor	**Poor**	**Poor**	**Poor**	
6. Chronic poverty	**Poor**	**Poor**	**Poor**	**Poor**	4 years

Number of poverty sequences with:

s states and **t** years

s^t

Example:

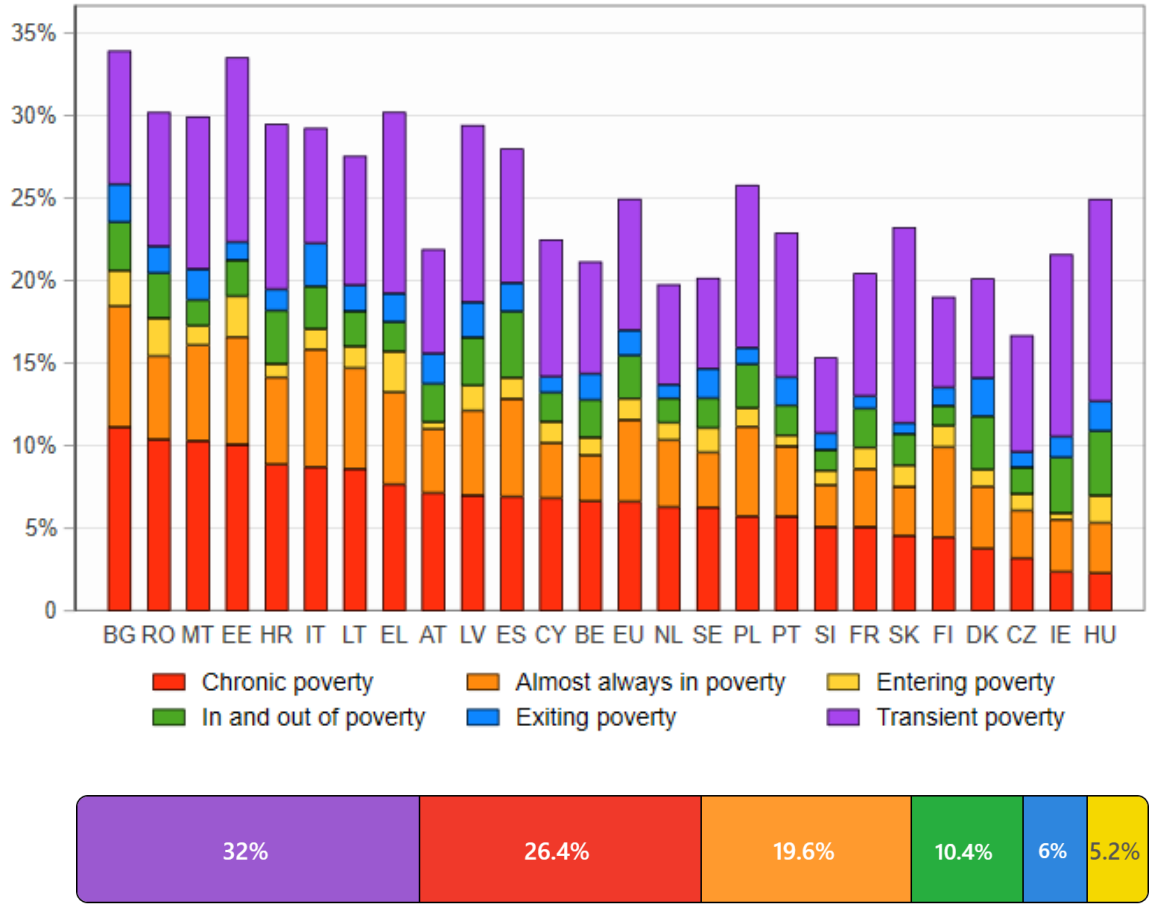
$2^4 = 16$

$2^6 = 64$

$2^8 = 256$ …

Poverty trajectories and sequences, 2014-2022, EU-25 (excl. LU, DE)

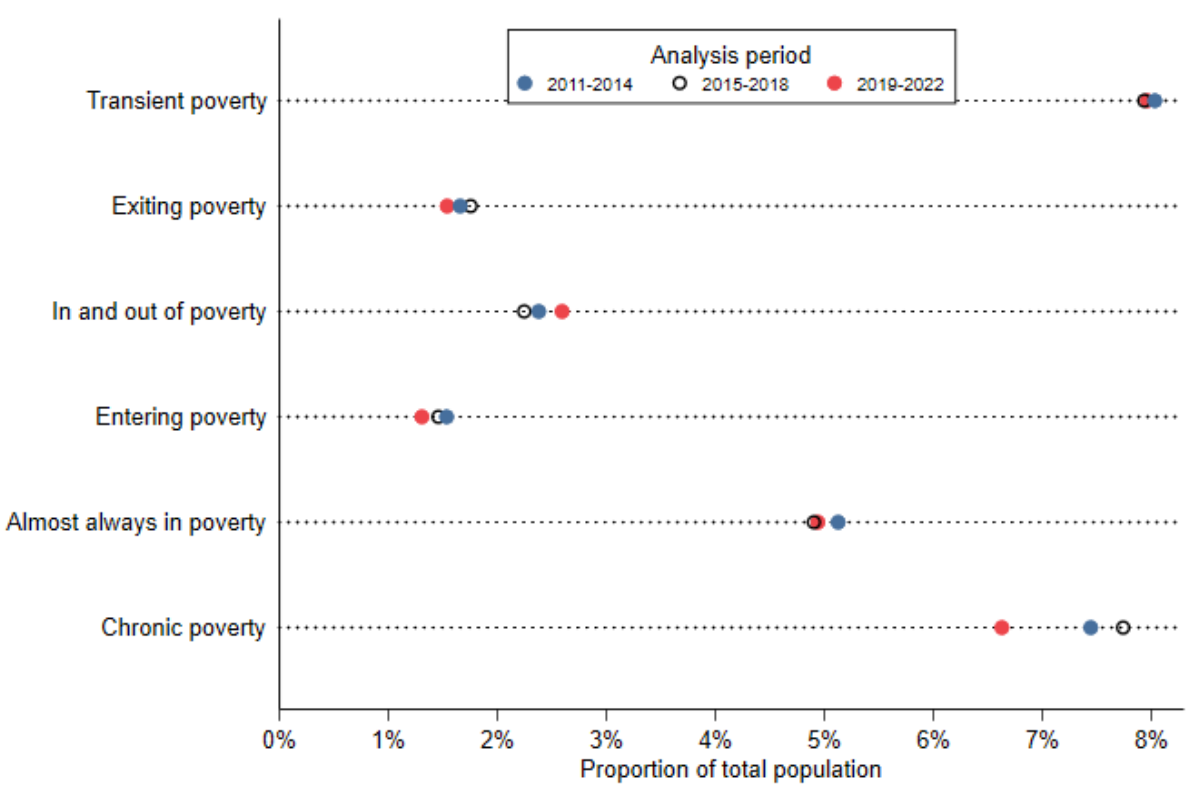
Poverty trajectories (share of total poor population), 2019-2022

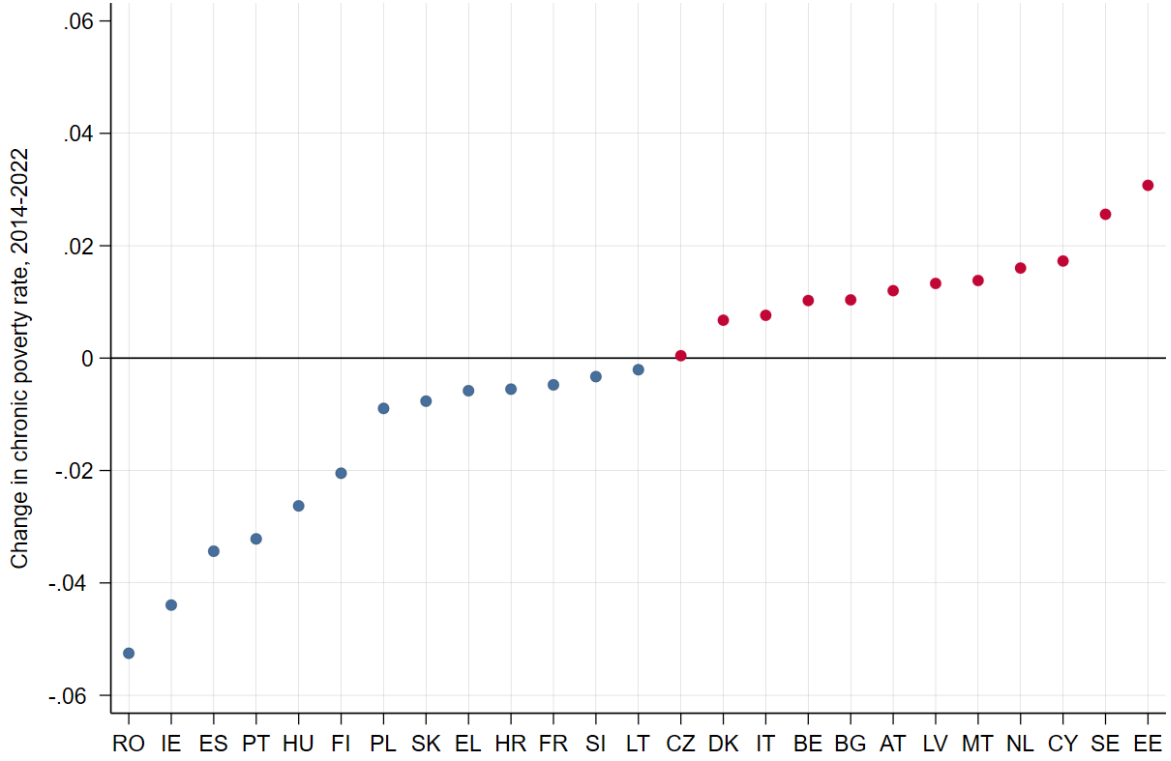


Poverty Trajectory	Poverty Sequence	2014-2011	2018-2015	2022-2019	Δ2014-2022
Never in poverty	NNNN	**73.83**	**73.97**	**75.03**	**1.2**
1. Transient poor	PNNN	2.97	3.07	2.59	-0.38
	NPNN	1.63	1.39	1.53	-0.10
	NNPN	1.30	1.24	1.73	0.43
	NNNP	2.12	2.24	2.12	0.00
		8.02	**7.94**	**7.97**	**-0.05**
2. Exiting poverty	PPNN	**1.66**	**1.75**	**1.54**	**-0.12**
3. In and out of poverty	PNPN	0.47	0.45	0.50	0.03
	PNNP	0.64	0.63	0.66	0.02
	NPPN	0.81	0.72	0.92	0.11
	NPNP	0.47	0.45	0.51	0.04
		2.39	**2.25**	**2.59**	**0.20**
4. Entering poverty	NNPP	**1.53**	**1.46**	**1.31**	**-0.22**
5. Almost always poor	PPPN	1.54	1.82	1.67	0.13
	PPNP	0.94	0.71	0.88	-0.06
	PNPP	1.03	0.77	0.82	-0.21
	NPPP	1.62	1.60	1.56	-0.06
		5.13	**4.90**	**4.93**	**-0.20**
6. Chronic poor	PPPP	**7.44**	**7.74**	**6.63**	**-0.81**

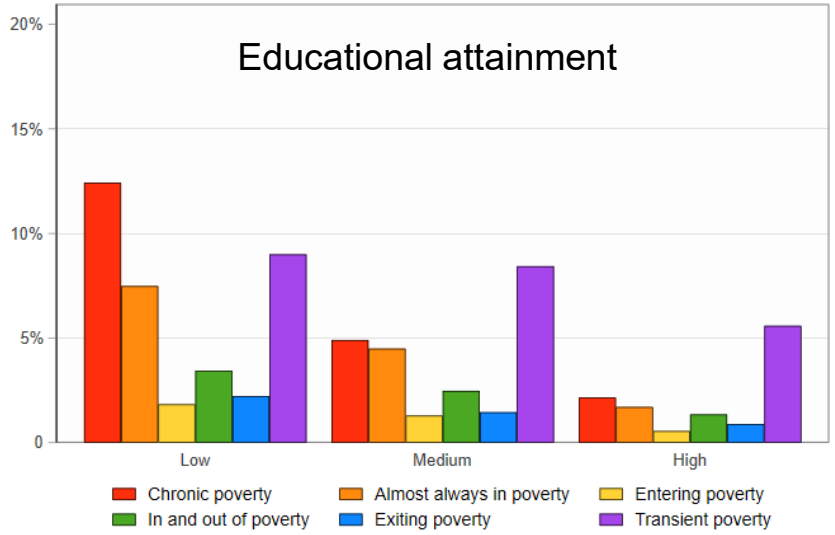
Notes: weighted estimates for the EU-25 based on the 4-year EU-SILC panel years: 2011-2014, 2015-2018 and 2019-2022. All values are rounded to two decimal places.

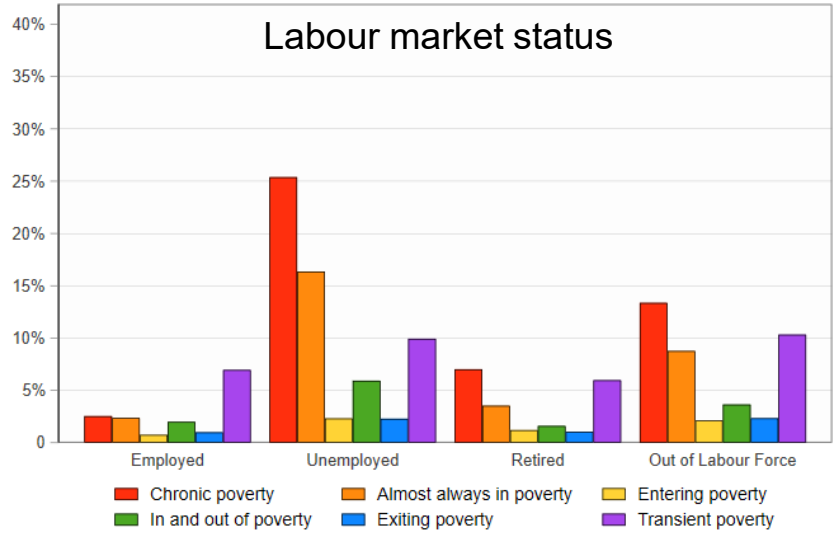
Changes in poverty trajectories (share of total population) in EU-25

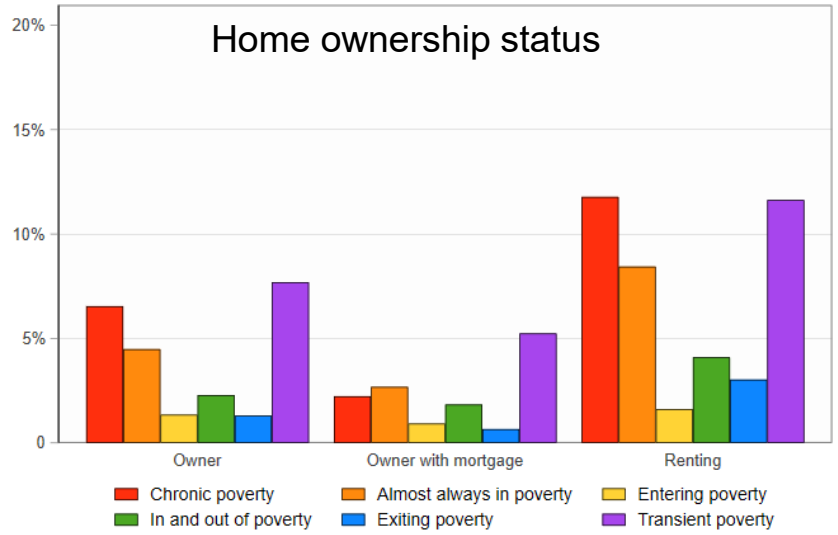


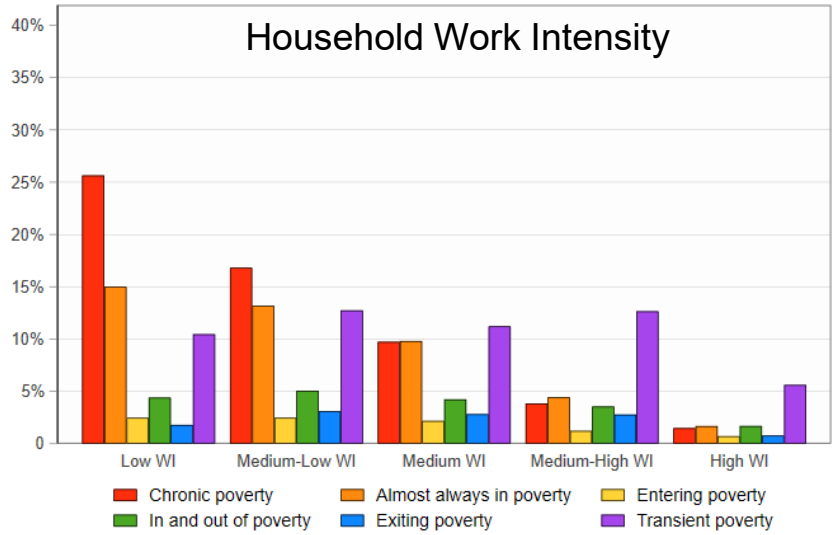


Poverty trajectories by individual and household characteristics









2. Dynamic risk of poverty

Individual level

$$PP_i = \frac{1}{T}\sum_{t=1}^{T} 1(y_{it} < z_t)$$

is the proportion of the total periods T an individual i is poor.
y_{it} is income and z_t the poverty line in each period.

Country level

$$DROP_k = \frac{1}{N}\sum_{i=1}^{N} 1(PP_i \geq Z)$$

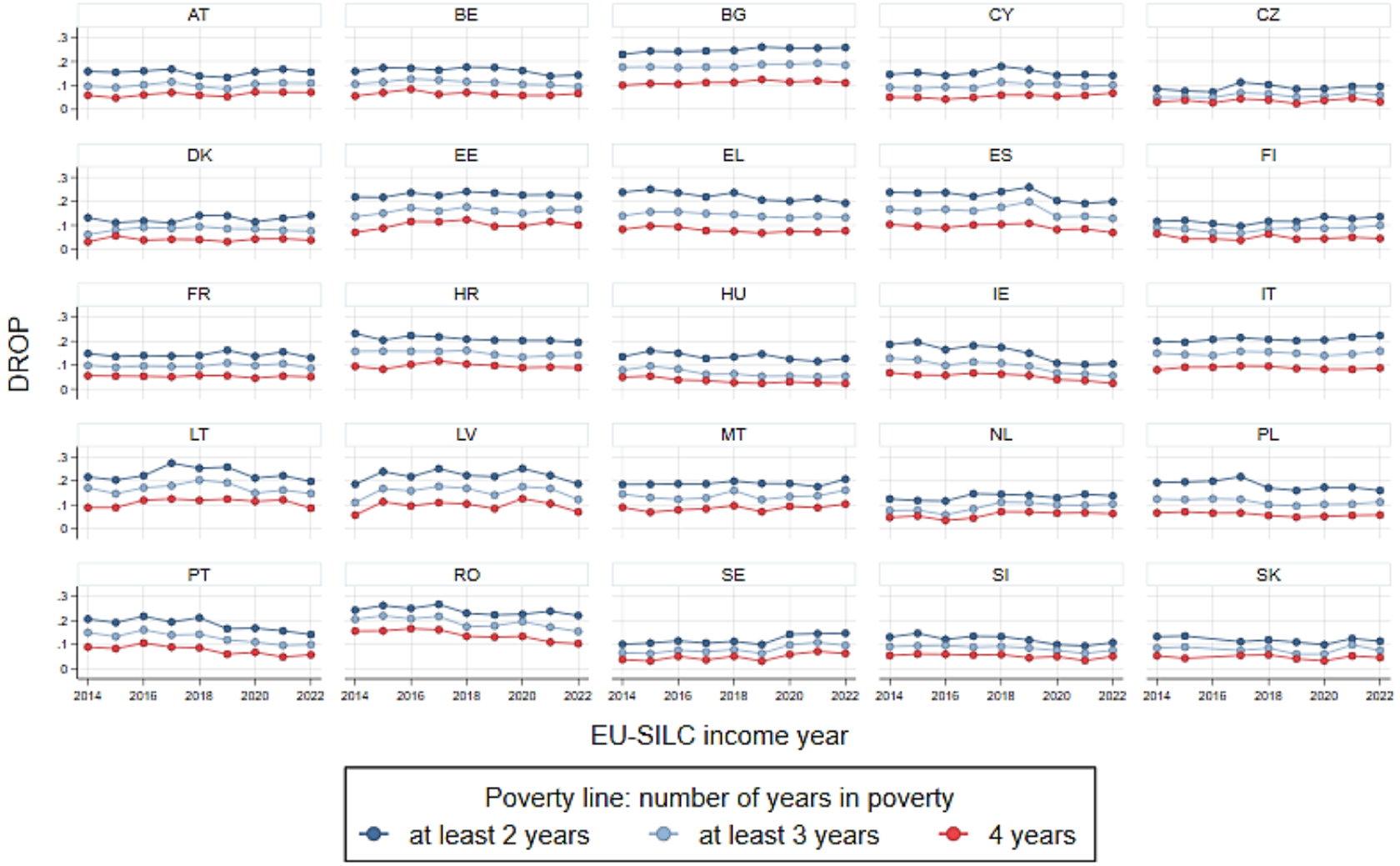
is the share of individuals in country k that have PP_i above or equal to a poverty line $Z \in [0,1]$

An individual can be considered as having experienced dynamic poverty over this 4-year period of analysis if they have spent anywhere between 1 and 4 of those years below the poverty line

Z

One year in poverty	$(1/4)$	→ Z = 0.25
Two years in poverty	$(2/4)$	→ Z = 0.50
Three years in poverty	$(3/4)$	→ Z = 0.75
Four years in poverty	$(4/4)$	→ Z = 1

The dynamic risk of poverty (share of total population), 2014-2022



Graphs by Country alphanumeric

3. Dynamic poverty gap

Individual level

$$DPG_i = \frac{1}{T}\sum_{t=1}^{T} g_{it} \quad , \quad g_{it} = \begin{cases} 0, & \text{if } y_{it} \geq z_t \\ 1 - \frac{y_{it}}{z_t}, & \text{if } 0 \leq y_{it} < z_t \end{cases}$$

- is the individual's average distance from the poverty line over a certain time span T
- it measures the individual's average poverty depth on a scale from 0 to 1, $\mathrm{DPG}i \in [0,1]$

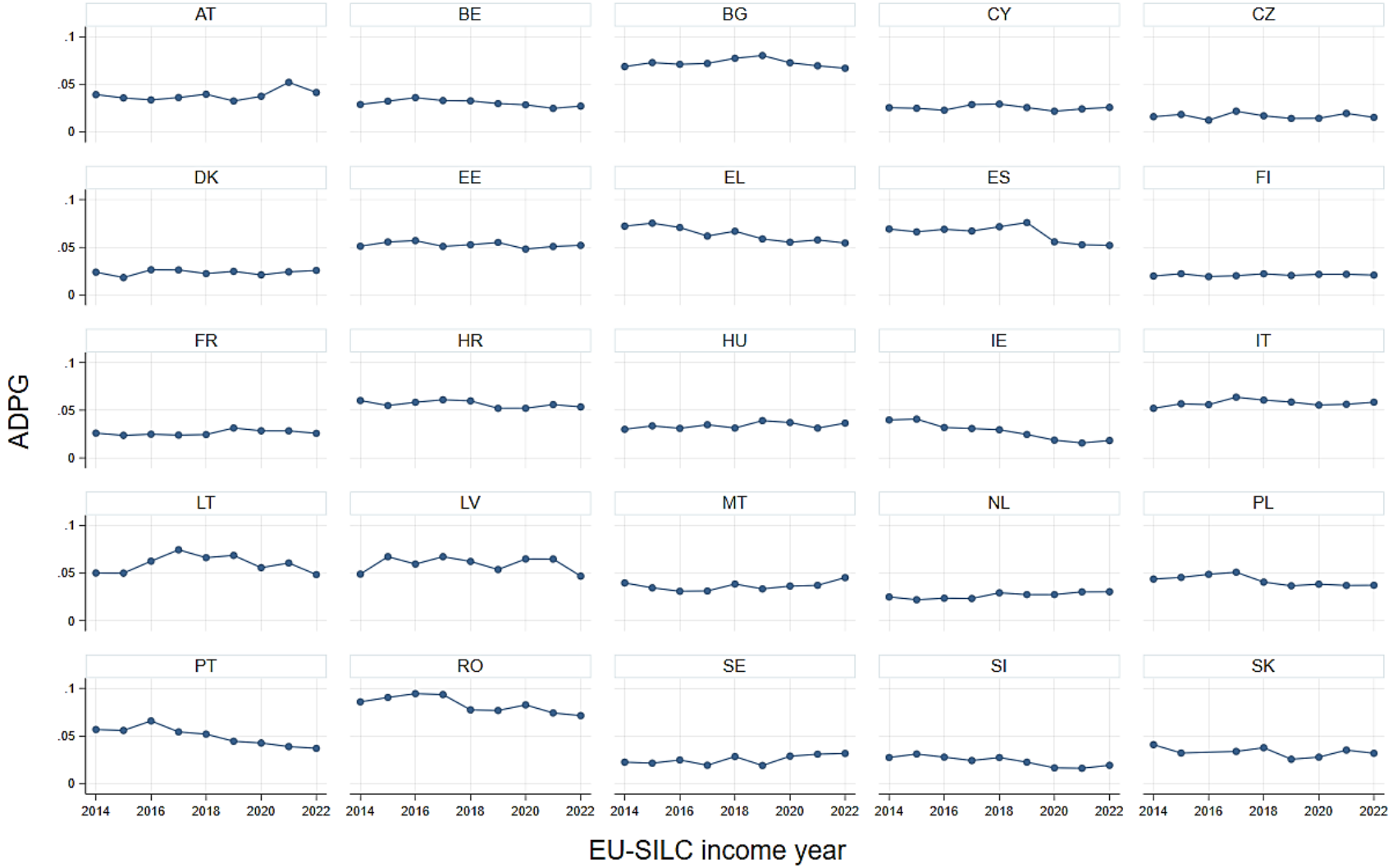
Country level

$$ADPG_k = \frac{1}{N}\sum_{i=1}^{N} DPG_i$$

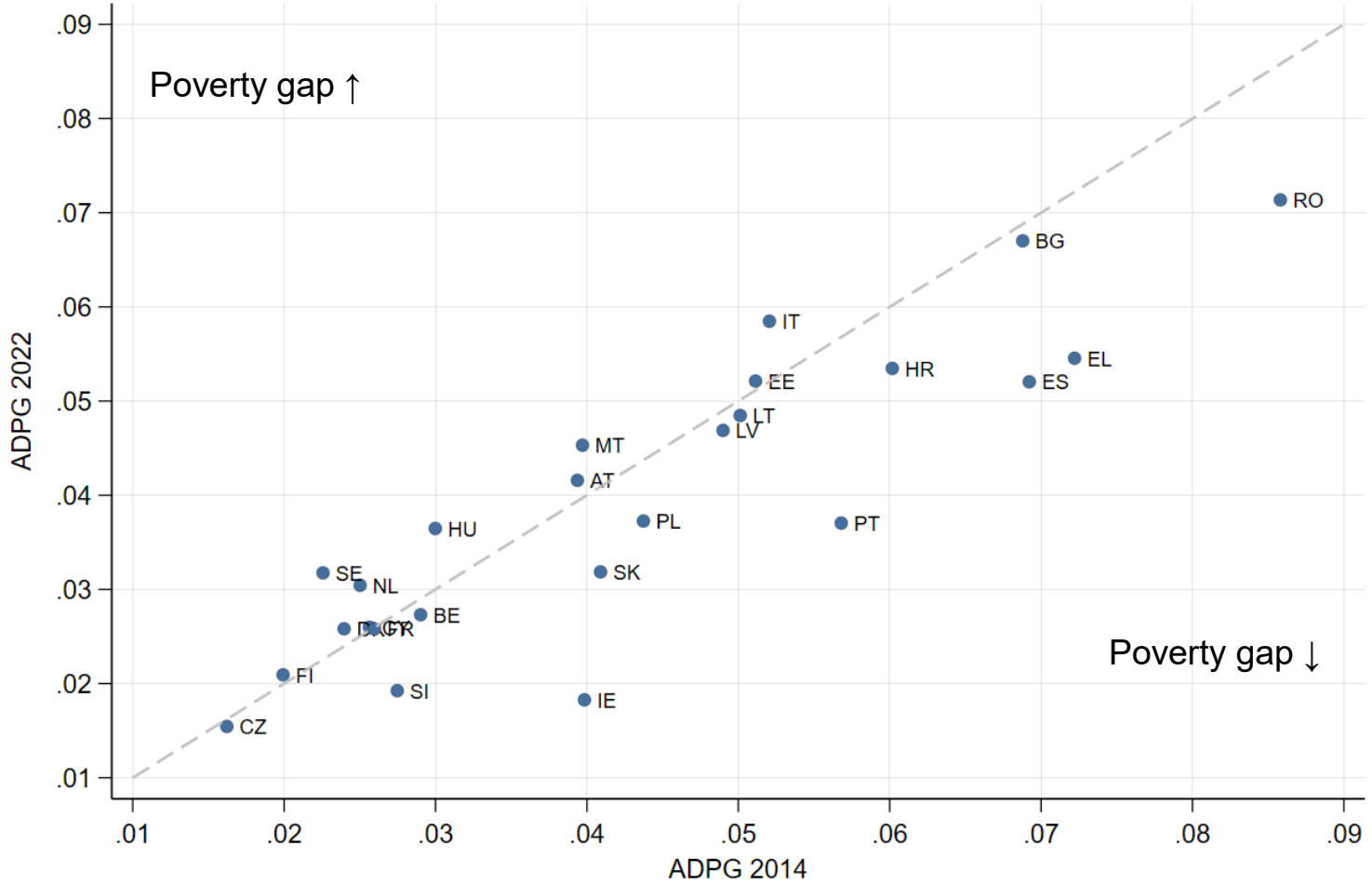
- is the average dynamic poverty gap by aggregating across individuals in country k
- it measures the population mean of dynamic poverty gaps, scaled between 0 and 1, $\mathrm{ADPG}k \in [0,1]$

Example: $ADPG_k = 0.25$ means that, spread across the entire population and time horizon, the average individual in country k lived 25% below the poverty threshold

Average dynamic poverty gap for the entire population, 2014-2022



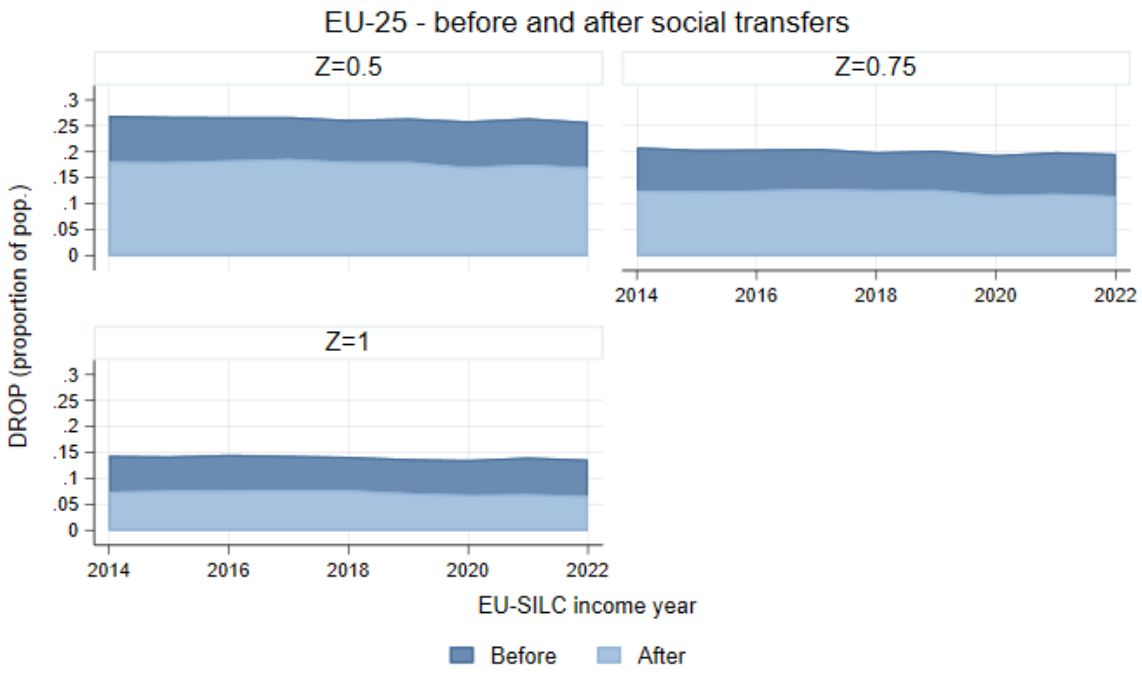
Changes in average dynamic poverty gap, 2014-2022



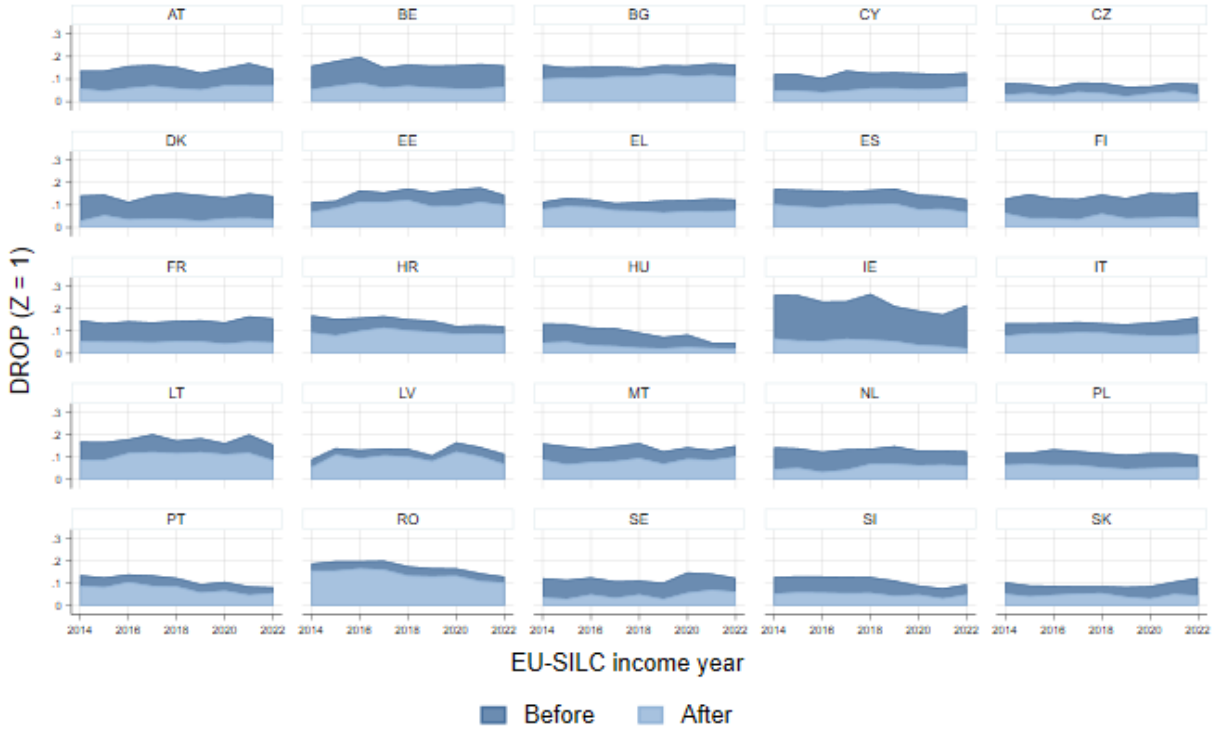
The gap decreased for both groups of countries.

- Those with higher gaps: Romania, Greece, Spain, Croatia and Portugal.
- And those with lower gaps: Ireland, Slovakia, Slovenia and Poland, but to a lesser extent.

Role of Social Protection, 2014-2022



Notes: before social transfers excludes pensions, derived from EU-SILC variable HY022.
Slovakia omitted in year 2016.



Notes: before social transfers excludes pensions, derived from EU-SILC variable HY022.

Concluding remarks

- Dynamic lens reveals more than static indicators. We classify six poverty trajectories and construct aggregate measures of both the incidence and depth of poverty over time.

- Almost one in four people (EU-25) experienced poverty at least once in 2019-2022 - far more than the 16.2% annual AROP, showing that yearly measures miss many people affected by poverty.

- Poverty patterns vary widely across countries, and similar poverty rates can hide important differences in long-term poverty.

- Chronic poverty has declined across the EU since 2014 - unevenly.
  Large reductions in Romania, Ireland and Spain; Increases in Estonia, Sweden and Cyprus.

- Some groups are much more likely to experience long-term poverty: unemployed people, people outside the labour force, renters, people with low education, and people born outside the EU.

- Social benefits may reduce dynamic poverty, but with varying effectiveness across countries.

Ongoing work

COVID-19

- Previous literature on shocks (e.g. Great Recession) finds long-lasting scarring effects on poverty persistence. Did the COVID-19 pandemic produce similar effects?
- See Da Costa and Sandor (2026) *Intertemporal Poverty Across Europe: Evidence From Before and After COVID-19* - https://papers.ssrn.com/sol3/papers.cfm?abstract_id=7172739

Administrative data

- Longer observation windows: allow the construction of more detailed dynamic poverty measures
- Lower attrition: improves the precision of dynamic poverty measures due to larger samples
- Better accuracy and scope for deeper analysis of specific aspects

Dynamic poverty before and after COVID-19

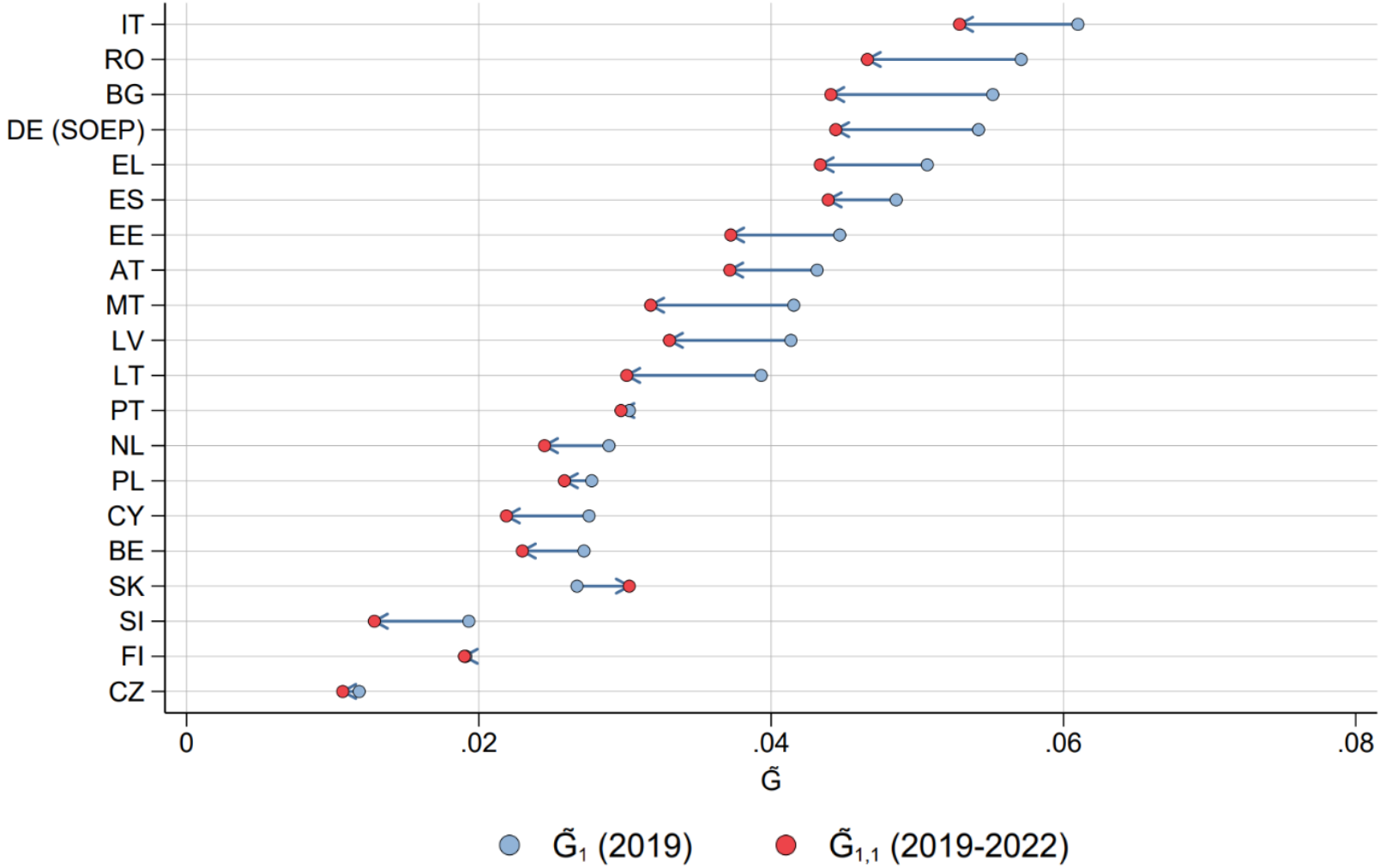


Figure from Da Costa and Sandor (2026)

Thank you

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Explaining poverty gap (choice of denominator - N)

Country A

Individuals	Years 1	Years 2	DPG_i
1	0	0,5	0,25
2	0,5	0	0,25

Country B

Individuals	Years 1	Years 2	DPG_i
1	0,5	0	0,25
2	0	0,5	0,25

$$ADPG_A = ADPG_B = \frac{0,5}{2} = 0,25$$

Country A

Individuals	Years 1	Years 2	DPG_i
1	0	0,5	0,25
2	0,5	0	0,25
3	0	0	0

Country B

Individuals	Years 1	Years 2	DPG_i
1	0,5	0	0,25
2	0	0,5	0,25
3	0	0,5	0,25

$$ADPG_A = \frac{0,5}{3} = 0,16 \qquad ADPG_B = \frac{0,75}{3} = 0,25$$

Country A

Individuals	Years 1	Years 2	DPG_i
1	0	0,5	0,25
2	0,5	0	0,25
3	0	0	0

Country B

Individuals	Years 1	Years 2	DPG_i
1	0,5	0	0,25
2	0	0,5	0,25
3	0	0,5	0,25

$$ADPG_A = \frac{0,5}{2} = 0,25 \qquad ADPG_B = \frac{0,75}{3} = 0,25$$

Multivariate analysis

We estimate a multinomial logit model on trajectories with baseline covariates from 2019-22 panel.

Higher education

(+) probability of never experiencing poverty by 17 pp

(-) probability of chronic poverty by 6 pp

Being **married**

(+) probability of never experiencing poverty by 8 pp

Number of children in the household

(-) probability of never experiencing poverty by 4 pp

Unemployment and Out of labour force

(-) probability of never experiencing poverty by 30 pp/18 pp

(+) probability of chronic poverty by 13 pp/8 pp

Renters and **rural residents**

(-) probability of never experiencing poverty by 13 pp and 8 pp

	(1) Never in poverty	(2) Transient poor	(3) Exiting poverty	(4) In and out of poverty	(5) Entering poverty	(6) Almost always poor	(7) Chronic poor
	0.76	**0.08**	**0.01**	**0.03**	**0.01**	**0.04**	**0.06**
Age	-0.01***	0.00**	0.00	0.00***	0.00	0.00***	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Age^2	0.00***	-0.00**	-0.00	-0.00***	-0.00	-0.00***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female	-0.00	0.00	0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Education: medium	0.09***	-0.01**	-0.00	-0.01***	-0.00*	-0.02***	-0.04***
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Education: high	0.17***	-0.03***	-0.01**	-0.02***	-0.01***	-0.04***	-0.06***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Married	0.08***	-0.02***	-0.00	-0.01***	-0.00**	-0.01***	-0.03***
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
#Children in household	-0.04***	0.01*	-0.00	0.01***	0.00***	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Chronic illness	-0.01**	0.01	-0.00	-0.00	0.00**	0.00	0.00
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
EU citizen	0.16***	-0.05***	-0.01***	-0.02***	-0.00	-0.03***	-0.04***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)
Towns/ suburbs	-0.03***	0.01	0.00	0.01	0.00**	0.00	0.00
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Rural	-0.08***	0.02***	0.01*	0.01***	0.00	0.01**	0.03***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Ownership: mortgage	0.06***	-0.02***	0.00	-0.00	-0.00	-0.01**	-0.02***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
Ownership: Renting	-0.13***	0.03***	0.01***	0.01**	0.01**	0.02***	0.05***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Unemployed	-0.30***	0.05***	0.03***	0.02***	0.01*	0.07***	0.13***
	(0.02)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
Retired	-0.03***	-0.01*	0.00**	0.00	-0.00	0.01***	0.03***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Out of Labour Force	-0.18***	0.03***	0.01***	0.01***	0.01***	0.04***	0.08***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Observations				**71,573**			

Weighted estimates, standard errors clustered by household between brackets. All specifications include country fixed effects. All controls measured at baseline, in 2019. Base categories for the following categorical variables are: i) education - low, ii) residence - living in a city, iii) ownership – owner without mortgage, iv) labour market status – employed. *** p<0.01, ** p<0.05, * p<0.1

COVID-19 – sensitivity to risk/inequality aversion

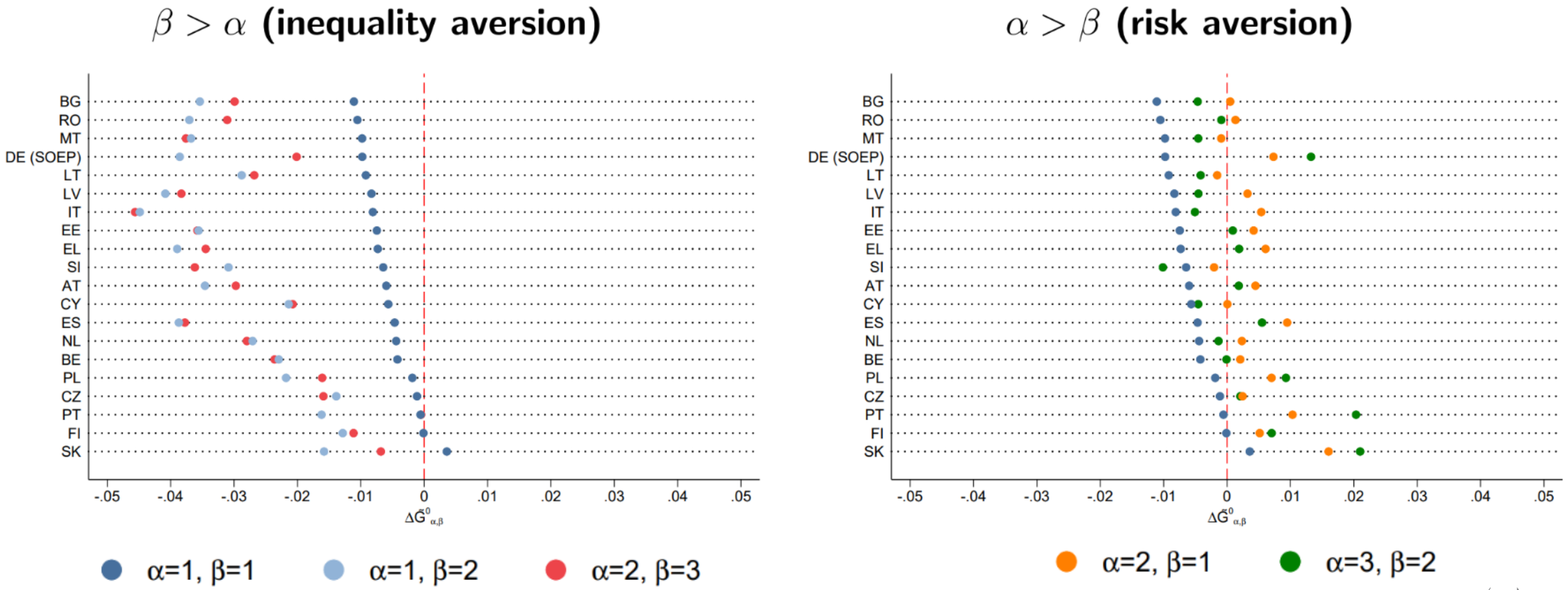


Figure adapted from Da Costa and Sandor (2026)